AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions and listings of claims in the application:

1-26. (Cancelled).

27. (Previously Presented) A method of molding and curing a tyre for a vehicle wheel, comprising:

building an unvulcanized tyre on a toroidal support;

heating the toroidal support;

pressing an inner surface of the tyre against an outer surface of the toroidal support; and

pressing an outer surface of the tyre against walls of a molding cavity defined in a vulcanization mold;

wherein a shape of the outer surface of the toroidal support substantially matches that of the inner surface of the tyre,

wherein the toroidal support is heated to transmit heat to the inner surface of the tyre in contact with the toroidal support,

wherein the inner surface of the tyre is pressed against the outer surface of the toroidal support by at least one secondary working fluid under pressure while an at least one primary working fluid provides heat and pressure to the inner surface of the tyre such that the pressure of the at least one secondary working fluid is greater than the pressure of the at least one primary working fluid,

wherein after the inner surface of the tyre has been pressed against the outer surface of the toroidal support by the at least one secondary working fluid under pressure, the outer surface of the tyre is pressed against the walls of the molding cavity by the at least one primary working fluid under pressure, which passes in at least one diffusion gap between the outer surface of the toroidal support and the inner surface of the tyre, and

wherein the at least one primary working fluid is heated to supply heat to the tyre, causing vulcanization of the tyre.

28. (Previously Presented) The method of claim 27, wherein the toroidal support is heated using electric resistors.

29. (Previously Presented) The method of claim 27, wherein the toroidal support is heated using the at least one primary working fluid conveyed into the toroidal support.

30. (Cancelled)

31. (Previously Presented) The method of claim 27, wherein during pressing the inner surface of the tyre against the outer surface of the toroidal support, the pressure of the at least one primary working fluid is less than 16 bars.

32. (Previously Presented) The method of claim 27, wherein during pressing the inner surface of the tyre against the outer surface of the toroidal support, the pressure of the at least one secondary working fluid is between 8 bars and 18 bars.

33. (Previously Presented) The method of claim 27, wherein during pressing the outer surface of the tyre against the walls of the molding cavity, a pressure of the at least one primary working fluid is between 18 bars and 35 bars.

34. (Previously Presented) The method of claim 27, wherein a temperature of the at least one primary working fluid is greater than or equal to about 170° C and less than or equal to about 210° C.

35. (Previously Presented) The method of claim 27, wherein the at least one primary working fluid comprises steam, nitrogen, or steam and nitrogen.

36. (Previously Presented) The method of claim 27, wherein pressing the inner surface of the tyre against the outer surface of the toroidal support comes before heating the toroidal support.

37. (Previously Presented) The method of claim 27, wherein pressing the inner surface of the tyre against the outer surface of the toroidal support comes after heating the toroidal support.

38. (Previously Presented) The method of claim 27, wherein pressing the inner surface of the tyre against the outer surface of the toroidal support takes place substantially simultaneously with heating the toroidal support.

39. (Previously Presented) The method of claim 27, further comprising:

transmitting heat to an external surface of a bead region of the tyre.

40. (Currently Amended) An apparatus for molding and curing a tyre for a vehicle wheel, the apparatus comprising:

a toroidal support having an inner surface and an outer surface;

an airtight vulcanization mold configured to receive the toroidal support, which is adapted to support an unvulcanized tyre within a molding cavity of the vulcanization mold;

~~at least one~~ a passage device, which fluidly connects the inner surface of the toroidal support and an outer surface of the toroidal support, and is configured to feed at least one primary working fluid under pressure between the outer surface of the toroidal support and an inner surface of the tyre;

a feeding device, which is operatively associated with the airtight vulcanization mold and is configured to supply at least one secondary working fluid to an outside of the tyre;

~~a toroidal support;~~

first heating devices configured to heat the toroidal support; and

second heating devices configured to heat the at least one primary working fluid to supply heat to the tyre, causing vulcanization of the tyre;

~~wherein the vulcanization mold is arranged to receive the toroidal support adapted to support an unvulcanized tyre within a molding cavity of the vulcanization mold,~~

~~wherein the at least one passage device is formed through the toroidal support,~~

~~wherein the at least one passage device opens onto an outer surface of the toroidal support,~~

~~wherein the at least one passage device is adapted to feed at least one primary working fluid under pressure, enabling passage of the at least one primary working fluid towards an inner surface of the tyre,~~

~~wherein the feeding device supplies at least one secondary working fluid under pressure,~~

~~wherein the feeding device is operatively associated with the vulcanization mold to press the tyre from an outside of the tyre to an inside of the tyre onto the outer surface of the toroidal support and to supply the at least one secondary working fluid at a pressure greater than a pressure of the at least one primary working fluid,~~

wherein the apparatus is adapted to feed simultaneously both the at least one primary working fluid under pressure and the at least one secondary working fluid under pressure such that the pressure of the at least one primary working fluid can be either greater than, less than, or equal to the pressure of the at least one secondary working fluid~~,~~

~~wherein the first heating devices heat the toroidal support, and~~

~~wherein the second heating devices heat the at least one primary working fluid to supply heat to the tyre, causing vulcanization of the tyre~~.

41. (Previously Presented) The apparatus of claim 40, wherein the feeding device comprises:

at least one delivery duct; and

one discharge duct.

42. (Previously Presented) The apparatus of claim 40, wherein the at least one primary working fluid is used to heat the toroidal support.

43. (Previously Presented) The apparatus of claim 40, wherein the first heating devices comprise electric resistors.

44. (Previously Presented) The apparatus of claim 40, wherein the vulcanization mold comprises:

a lower half;

an upper half;

at least one circumferential seal; and

a plurality of other seals;

wherein the lower half is engaged with a base,

wherein the upper half is engaged with a closing portion,

wherein the at least one circumferential seal is disposed on opposite surfaces of the lower and upper halves, and

wherein the plurality of other seals is disposed close to vents for releasing the at least one primary working fluid.

45. (Currently Amended) An apparatus for molding and curing a tyre for a vehicle wheel, the apparatus comprising:

a toroidal support having an inner surface and an outer surface;

an airtight device arranged to receive the toroidal support;

a vulcanization mold configured to receive the toroidal support, which is adapted to support an unvulcanized tyre within a molding cavity of the vulcanization mold;

~~at least one~~ a passage device, which fluidly connects the inner surface of the toroidal support and an outer surface of the toroidal support, and is configured to feed at least one primary working fluid under pressure between the outer surface of the toroidal support and an inner surface of the tyre;

a feeding device, which is operatively associated with the airtight device and is configured to supply at least one secondary working fluid to an outside of the tyre;

~~a toroidal support;~~

first heating devices configured to heat the toroidal support; and

second heating devices configured to heat the at least one primary working fluid to supply heat to the tyre, causing vulcanization of the tyre; ~~and~~

~~an airtight device arranged to receive the toroidal support;~~

~~wherein the vulcanization mold is arranged to receive the toroidal support adapted to support an unvulcanized tyre within a molding cavity of the vulcanization mold,~~

~~wherein the at least one passage device is formed through the toroidal support,~~

~~wherein the at least one passage device opens onto an outer surface of the toroidal support,~~

~~wherein the at least one passage device is adapted to feed at least one primary working fluid under pressure, enabling passage of the at least one primary working fluid towards an inner surface of the tyre,~~

~~wherein the feeding device supplies at least one secondary working fluid under pressure,~~

~~wherein the feeding device is operatively associated with the airtight device for pressing the tyre from an outside of the tyre to an inside of the tyre onto the outer surface of the toroidal support and to supply the at least one secondary working fluid at a pressure greater than a pressure of the at least one primary working fluid,~~

wherein the apparatus is adapted to feed simultaneously both the at least one primary working fluid under pressure and the at least one secondary working fluid under pressure into the airtight device, such that the pressure of the at least one primary working fluid is less than the pressure of the at least one secondary working fluid~~,~~

~~wherein the first heating devices heat the toroidal support, and~~

~~wherein the second heating devices heat the at least one primary working fluid to supply heat to the tyre, causing vulcanization of the tyre~~.

46. (Previously Presented) The apparatus of claim 45, wherein the airtight device comprises:

a lower half;

an upper half; and

at least one circumferential seal;

wherein the lower half is engaged with a base,

wherein the upper half is engaged with a closing portion, and

wherein the at least one circumferential seal is disposed on opposite surfaces of the lower and upper halves.

47. (Previously Presented) The apparatus of claim 45, wherein the feeding device comprises:

at least one delivery duct; and

one discharge duct.

48. (Previously Presented) The apparatus of claim 45, wherein the airtight device comprises at least one duct for feeding the at least one primary working fluid.

49. (Previously Presented) The apparatus of claim 45, wherein the first heating devices comprise electric resistors.

50. (Previously Presented) The apparatus of claim 45, wherein the airtight device comprises:

at least one third heating device for supplying heat to an external surface of the tyre.

51. (Previously Presented) The apparatus of claim 50, wherein the at least one third heating device comprises electric resistors.

52. (Previously Presented) The apparatus of claim 45, wherein the airtight device comprises at least one duct for feeding the at least one primary working fluid,

wherein the airtight device comprises at least one third heating device for supplying heat to an external surface of the tyre, and

wherein the at least one third heating device is powered by the at least one primary working fluid.